StatCrunch Assignment 2

The data "normtemp.xls" is an Excel data set containing information about body temperature, sex, and heart beat rate for 130 randomly selected people. It is described in detail below. Please load the data set into StatCrunch, then answer the following questions, using StatCrunch to help with your computations:

1. *Is the distribution of body temperatures normal?*
2. *Is the true population mean temperature really 98.6 degrees F as is commonly assumed?*
3. *Is there a significant difference between males and females in normal temperature?*
4. *Is there a relationship between body temperature and heart rate?*

You should copy-and-paste any charts supporting your answers into a Word document, and write up all your answers into that Word document. Then send me this document via email. Here are a few hints regarding these questions:

- To answer question 1, a histogram would be helpful, and if you don't find that histogram sufficient you *could* do a Box Plot
- Question 2 clearly is a statistical test about a mean. Make sure to conduct the test as we learned it but state your conclusion in "normal" language, understandable by a non-statistician. Don't forget to include the p-value, but interpret it in "lay" terminology.
- Question 3 is a difference of means test. Split your data into two groups (men and women), then conduct a difference of means test. As before, state your conclusion in easy to understand language, including the p-value.
- Question 4 sounds like a "linear regression" question. Make sure to compute the correlation coefficient and draw a scatter diagram. Again, your conclusions should be understandable by everyone.

You can download the data file from the web (copy-paste the data file URL) or you can get the data from StatCrunch as shared data, which is convenient if you are using StatCrunch mobile: tap "Data" -> "From statcrunch.com" -> "Shared Data Sets". Search for "shudemo" is necessary, then load the file "ComputerAssign2-normtemp.xls".

Description of the Data File
CONTENT: Normal Body Temperature, Gender, and Heart Rate
TYPE: Random sample
SIZE: 130 observations, 3 variables

This article takes data from a paper in the _Journal of the American Medical Association_ that examined whether the true mean body temperature is 98.6 degrees Fahrenheit.

These data are derived from a dataset presented in Mackowiak, P. A., Wasserman, S. S., and Levine, M. M. (1992), "A Critical Appraisal of 98.6 Degrees F, the Upper Limit of the Normal Body Temperature, and Other Legacies of Carl Reinhold August Wunderlich," _Journal of the American Medical Association_, 268, 1578-1580.

VARIABLE DESCRIPTIONS:
Temp = Body temperature (degrees Fahrenheit)
Sex = Gender (1 = male, 2 = female)
Beats = Heart rate (beats per minute)

Additional information about these data can be found in the "Datasets and Stories" article "What's Normal? -- Temperature, Gender, and Heart Rate" in the _Journal of Statistics Education_ (Shoemaker 1996).